

Question

Suppose that a random variable X has the pdf

$$\frac{1}{\sqrt{2\pi}}x^{-\frac{1}{2}}e^{-\frac{x}{2}}, \quad 0 < x < \infty.$$

Using a list of distributions, give the names and the parameters of two distributions that this pdf matches.

Answer

It matches with the χ^2 distribution for $p = 1$. Since $\Gamma\left(\frac{1}{2}\right) = \sqrt{\pi}$

It matches with the gamma distribution with $\alpha = \frac{1}{2}$ and $\beta = 2$.